2005-2006 INNOVATIVE WASTE REDUCTION AND RECYCLING GRANT AGREEMENT

FOR STATE ASSISTANCE UNDER SECTION 403.7095, FLORIDA STATUTES

PART I - GRANT NOTIFICATION INFORMATION

1. Grant Agreement Number: IG-06-01
2. Date of Award: July 29, 2005
3. Grant Title: **INNOVATIVE WASTE REDUCTION AND RECYCLING GRANT**
4. Grant Period: **October 1, 2005 or Execution (whichever is later) – October 31, 2006**
5. Grant Amount: $200,000
6. Grantee Match Amount: $58,000
7. CSFA # and Project Name: 37.050/Innovative Waste Reduction and Recycling Grant
8. Issuing Office:

   Florida Department of Environmental Protection
   Bureau of Solid and Hazardous Waste
   Waste Reduction Section (MS 4570)
   2600 Blair Stone Road
   Tallahassee, Florida 32399-2400
   (850) 245-8716

9. Grantee(s): **Leon County**

   Address: 7550 Apalachee Parkway
   Tallahassee, Florida 32311

10. Grantee Fiscal Year End: 9/30/05
11. Federal Employer Identification Number: 59-6000708
12. Grantee's Representative Authorized to execute Agreement:

    Name: Cliff Thaell
    Title: Chairman, Board of County Commissioners
    Phone: 850-488-9962

13. Grantee's Grant Manager:

    Name: Adam Schlachter
    Title: Recycling Coordinator
    Address: 7550 Apalachee Parkway
    Tallahassee, Florida 32311
    Phone: 850-414-9846

14. Department's Grant Manager:

    Name: Karen Moore
    Title: Environmental Specialist
    Address: 2600 Blair Stone Road
    MS4570

01

Tallahassee, Florida 32399
Phone: 850-245-8726

PART II – GRANT CONDITIONS

GENERAL CONDITIONS:

15. The Florida Department of Environmental Protection (hereinafter referred to as the "Department" or "DEP") does hereby enter into an Innovative Waste Reduction and Recycling Grant Agreement with Leon County (hereinafter referred to as "Grantee" or "Recipient") to conduct the project described in **Attachment A** - Project Work Plan, **Attachment B** - Grant Proposal, and **Attachment C** – Certification by Engineer or Other Qualified Professional, attached hereto and made a part hereof.

16. The method of payment, for the period beginning October 1, 2005 or upon Agreement execution, whichever is later, through **October 31, 2006,** will be on a reimbursement basis for direct costs only. All work must be completed and grant funds expended by **October 31, 2006.**

17. The Grantee shall submit reimbursement requests on a quarterly basis. An original of the reimbursement request, with summaries and appropriate contracts attached, shall be due on the 15th day of the month following the end of the quarterly reporting period. For purposes of this Agreement, the term "quarterly" shall represent the calendar quarters ending March 31st, June 30th, September 30th, and December 31st. Each reimbursement request shall be submitted in detail sufficient for pre-audit and post-audit review. A final reimbursement request must be submitted no later than **October 31, 2006.**

18. A. The Grantee shall submit an original and two copies of **Attachment D** – Payment Request Summary Form, attached hereto and made a part hereof, in conjunction with the required progress report to the DEP Grant Manager. In addition to the summary form, the Grantee must provide from its accounting system, a listing of expenditures charged against this Agreement. The listing shall include, at a minimum, a description of the goods or services purchased, date of the transaction, voucher number, amount paid, and vendor name. Five percent (5%) of each request, up to a maximum of five percent (5%) of the total Grant amount shall be withheld until the final report has been received and accepted by the Department. Reimbursement requests must be signed by the Grantee's designated authorized representative. This should be the same person who signed the Grant Agreement. If there is a change in the authorized representative during the Grant period, the Department must be notified in writing.

B. In addition to the requirements in the paragraph above, the Department will periodically request proof of a transaction (invoice, payroll register, etc.) to evaluate the appropriateness of costs to the Grant Agreement pursuant to State and Federal guidelines (including cost allocation guidelines), as appropriate. This information, when requested, must be provided within 30 calendar days of such request. The Grantee may also be required to submit a cost allocation plan to the Department in support of its multipliers (overhead, indirect, general administrative costs, and fringe benefits). All bills for amounts due under this Grant Agreement shall be submitted in detail sufficient for a proper pre-audit and post-audit thereof. State guidelines for allowable costs can be found in the Department of Financial Services' Reference Guide for State Expenditures at http://www.dbf.state.fl.us/aadir/reference_guide.

C. Travel expenses incurred are included in the amount of this Grant and no additional travel expenses will be authorized. Any requests for reimbursement of travel expenses must be submitted in accordance with Section 112.061, Florida Statutes. The travel forms can be found at http://www.dep.state.fl.us/admin/forms/FinAcct_forms.htm.

D. Progress reports shall be submitted in conjunction with reimbursement requests and shall clearly describe the activities undertaken during the reporting period, activities anticipated for the next reporting period, problems encountered, problem resolutions, a financial summary of the project (including matching and in-kind services), and any schedule updates. In addition to the progress reports required above, the Grantee shall submit the deliverables specified in **Attachment A** – Project Work Plan. The Grantee shall submit a final project report (as described in paragraph 19, below) no later than thirty (30) days following the completion date of this Agreement. Upon receipt and approval of all deliverables specified herein and an invoice requesting payment, the Department will release all funds retained pursuant to 18.A above.

E. The State of Florida's performance and obligation to pay under this Grant Agreement is contingent upon an annual appropriation by the Legislature.

19. The Grantee's final report should be presented in a technical or scientific manner. It should be able to stand on its own so individuals with first time knowledge of the project might understand it. The final report shall be submitted in hardcopy and MS Word or PDF electronic format and include, but not be limited to, the following information:

A. An introduction briefly describing the project and the contents of the final report. It should also include, but not be limited to, the following:

1. The background of how this project came about.
2. The objectives or goals of the project.
3. What made this project innovative?
4. The proposed audience and date for the formal presentation about the project at an appropriate state or national workshop. Are any published articles in recognized trade journals or professional journals planned?

B. The implementation of the project including, but not limited to, the following:

1. What equipment and/or services were purchased and how it was utilized.
2. A description of the various elements or components and a project timeline.
3. Problems encountered during the project and how they were resolved or addressed.

C. The project results including, but not limited to, the following:

1. How the objectives or goals were or were not met for this project.
2. How this project demonstrated or utilized advanced technologies or processes, which are not in common use on a statewide basis in jurisdictions of similar size or demographics.
3. How this project lead to greater quantities of recovered materials and/or created a product that is more recyclable and/or marketable.
4. The transferability of the technology or processes realized from this project and how it was or will be applicable to other communities, businesses or individuals.

5. A detailed analysis and discussion of how this project resulted in substantial improvements in recycling program cost effectiveness and efficiency as measured against statewide average costs for the same or similar programs. Include the following:
   a. Total dollar figures of the various elements or components of the project, including administration, equipment, operations, advertising, education and any other expenses incurred during the project.
   b. Project expenditures categorized for both the public versus private sectors and the sources of project funding comparing the county (including in-kind services) versus the innovative grant.
   c. Tipping fees avoided as a result of waste diversion/reduction.
   d. A cost/benefit ration for the project comparing the cost of project versus the benefits that were achieved. Include any assumptions made in deriving this information. Discussion should include the following:
      1. Avoided material tonnages and space (in cubic yards) at area landfills.
      2. Possible impacts made conserving natural resources.
      3. Cost per capita and per ton of specific material(s) recovered or recycled as part of this project.
   e. How the project has collected and recycled nontraditional materials, and enhanced their marketability and availability to end markets.

20. The Grantee shall maintain accurate records of all expenditures of Grant funds and shall assure that these records are available at all reasonable times for inspection, review or audit by Department personnel and other personnel authorized by the Department. Records shall be kept for a period of at least 5 years following the end of the Grant period. The Grantee agrees that it will expeditiously initiate and complete the program work for which assistance has been awarded under this Grant Agreement in accordance with all applicable provisions of Florida Statutes and the Florida Administrative Code. In the event any work is subcontracted, the Grantee shall similarly require each subcontractor to maintain and allow access to such records for audit purposes.

21. A. In addition to the requirements of the preceding paragraph, the Grantee shall comply with the applicable provisions contained in **Attachment E (Special Audit Requirements)**, attached hereto and incorporated herein by reference. **Exhibit 1** to **Attachment E** summarizes the funding sources supporting the Agreement for purposes of assisting the Grantee in complying with the requirements of **Attachment E**. A revised copy of **Exhibit 1** must be provided to the Grantee for each amendment which authorizes a funding increase or decrease. If the Grantee fails to receive a revised copy of **Exhibit 1**, the Grantee shall notify the Department's Grants Development and Review Manager at 850/245-2361 to request a copy of the updated information.

B. The Grantee is hereby advised that the Federal and/or Florida Single Audit Act requirements may further apply to lower tier transactions that may be a result of this Agreement. The Grantee shall consider the type of financial assistance (federal and/or state) identified in **Attachment E, Exhibit 1** when making its determination. For federal financial assistance, the Grantee shall utilize the guidance provided under OMB Circular A-133, Subpart B, Section ___.210 for determining whether the relationship represents that of a subrecipient or vendor. For state financial assistance, the Grantee shall utilize the form entitled "Checklist for Nonstate Organizations Recipient/Subrecipient vs Vendor Determination" (form number FSAA_CL2) that can be found under the "Links/Forms" section appearing at the following website:

http://www.fsaa.state.fl.us/

The Grantee should confer with its chief financial officer, audit director or contact the Department for assistance with questions pertaining to the applicability of these requirements.

22. The Department has the right to terminate this Agreement and demand refund of grant funds for non-compliance with the terms of this Agreement. Such action may also result in the Department declaring the Grantee ineligible for further participation in the program until the Grantee complies with the terms of this Agreement.

23. When applicable, the Grantee shall obtain all necessary construction-related permits before initiating construction.

24. A. The Grantee may subcontract work under this Agreement with the prior written consent of the Department's Grant Manager. The Grantee agrees to be responsible for the fulfillment of all work elements included in any subcontract and agrees to be responsible for the payment of all monies due under any subcontract. It is understood and agreed by the Grantee that the Department shall not be liable to any subcontractor for any expenses or liabilities incurred under the subcontract and that the Grantee shall be solely liable to the subcontractor for all expenses and liabilities incurred under the subcontract.

B. The Department of Environmental Protection supports diversity in its procurement program and requests that all subcontracting opportunities afforded by this Agreement embrace diversity enthusiastically. The award of subcontracts should reflect the full diversity of the citizens of the State of Florida. The Department will be glad to furnish a list of minority owned businesses for consideration in subcontracting opportunities.

C. The Grantee must comply with the applicable requirements of Section 287.055, F.S., when acquiring professional services (professional engineers, architects, landscape architects, and/or survey and mappers).

D. The Grantee shall acquire all contractual services and/or commodities utilizing procurement methods comparable to those described in Chapter 287, F.S.

25. This Agreement may be unilaterally canceled by the Department for refusal by the Grantee to allow public access to all documents, papers, letters, or other material subject made or received by the Grantee in conjunction with this Agreement, unless the records are exempt from Section 24(a) of Article I of the State Constitution and Section 119.07(1), Florida Statutes.

26. Pursuant to section 216.347, Florida Statutes, the Grantee is prohibited from using Grant funds for the purpose of lobbying the Legislature, the judicial branch, or a State Agency.

27. To the extent required by law, the Grantee will be self-insured against, or will secure and maintain during the life of this Grant Agreement, Workers' Compensation Insurance for all of its employees connected with the work of this project and, in case any work is subcontracted, the Grantee shall require the subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees unless such employees are covered by the protection afforded by the Grantee. Such self-insurance program or insurance coverage shall comply fully with the Florida Workers' Compensation law. In case any class of employees engaged in hazardous work under this Grant Agreement is not protected under Workers' Compensation statutes, the Grantee shall provide, and cause each subcontractor to provide, adequate insurance satisfactory to the Department, for the protection of his employees not otherwise protected.

28. The Grantee, as an independent contractor and not an agent, representative, or employee of the Department, agrees to carry adequate liability and other appropriate forms of insurance. The Department shall have no liability except as specifically provided in this Agreement.

29. Each party hereto agrees that it shall be solely responsible for the negligent or wrongful acts of its employees and agents. However, nothing contained herein shall constitute a waiver by either party of its sovereign immunity or the provisions of Section 768.28, Florida Statutes.

30. The Grantee covenants that it presently has no interest and shall not acquire any interest, which would conflict in any manner or degree with the performance of services required.

31. Upon satisfactory completion of this Grant Agreement, the Grantee may retain ownership of the equipment purchased under this Grant Agreement. However, the Grantee shall complete and sign a Property Reporting Form, provided as **Attachment F**, and forward it along with the appropriate invoice to the Department's Grant Manager. The following terms shall apply:

    A. The Grantee shall have use of the equipment for the authorized purposes of the contractual arrangement as long as the required work is being performed.

    B. The Grantee is responsible for the implementation of adequate maintenance procedures to keep the equipment in good operating condition.

    C. The Grantee is responsible for any loss, damage, or theft of, and any loss, damage or injury caused by the use of, non-expendable personal property or equipment purchased with state funds and held in his possession for use in a contractual arrangement with the Department.

    D. The Grantee shall report the inventory of the equipment, on an annual basis, no later than January 31st for each year this Agreement is in effect.

    E. The equipment may be leased or loaned to a private business, if necessary for this project. If leased, proceeds received from lease shall be documented and used to offset reimbursement requests made under this Agreement.

    F. For a period of three years following the completion date of this Grant Agreement, the Grantee shall maintain ownership of all equipment purchased with funds from this Grant, shall list said equipment purchases on its property inventory, and shall assure that said equipment is used exclusively in some recycling capacity in the

State of Florida. Within the above stated three-year period, the Grantee may sell the equipment for fair market value provided that the proceeds of such sale are returned to the Department.

G. A "release of lien" for any structures built or purchased with grant funds must be provided to the Department with the final report. Any site containing state purchased equipment must provide records disclosure/access to state auditors.

32. A. No person, on the grounds of race, creed, color, national origin, age, sex, or disability, shall be excluded from participation in; be denied the proceeds or benefits of; or be otherwise subjected to discrimination in performance of this Grant Agreement.

B. An entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid on a contract to provide goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not award or perform work as a contractor, supplier, subcontractor, or consultant under contract with any public entity, and may not transact business with any public entity. The Florida Department of Management Services is responsible for maintaining the discriminatory vendor list and intends to post the list on its website. Questions regarding the discriminatory vendor list may be directed to the Florida Department of Management Services, Office of Supplier Diversity, at 850/487-0915.

33. A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not perform work as a Grantee, contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, F.S., for Category Two, for a period of 36 months from the date of being placed on the convicted vendor list.

34. Grantee shall comply with all applicable federal, state and local rules and regulations in conducting the project funded under this Grant Agreement. The Grantee acknowledges that this requirement includes compliance with all applicable federal, state and local health and safety rules and regulations. The Grantee further agrees to include this provision in all subcontracts issued as a result of this Grant Agreement.

35. If the Grantee's project involves environmentally related measurements or data generation, the Grantee shall develop and implement quality assurance practices consisting of policies, procedures, specifications, standards, and documentation sufficient to produce data of quality adequate to meet project objectives and to minimize loss of data due to out-of-control conditions or malfunctions. All sampling and analyses performed under this Agreement must conform to the requirements set forth in Chapter 62-160, Florida Administrative Code, and the Quality Assurance Requirements, attached hereto and made a part hereof as **Attachment G**.

36. Land acquisition is not authorized under the terms of this Agreement.

37. The Department may at any time, by written order designated to be a change order, make any change in the work within the general scope of this Agreement (e.g., specifications, task timeline within current authorized Agreement period, method or manner of performance, requirements, etc.). All change orders are subject to the mutual agreement of both parties as evidenced in writing. Any change, which causes an increase or decrease in the Grantee's cost or time, shall require formal amendment to this Agreement.

38. This Agreement represents the entire agreement of the parties. Any alterations, variations, changes, modifications or waivers of provisions of this Agreement shall only be valid when they have been reduced to writing, duly signed by each of the parties hereto, and attached to the original of this Agreement, unless otherwise provided herein.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

PART III - OFFER AND ACCEPTANCE

The State of Florida, acting by and through the Department of Environmental Protection, hereby offers assistance to Leon County for all allowable costs incurred up to and not exceeding $200,000.

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION:

William W. Hinkley, Chief — Date: 8/8/05
Bureau of Solid & Hazardous Waste

Approved as to form and legality:

DEP Program Attorney — Date: 8/8/05

In accepting this award and any payments made pursuant thereto, (1) the undersigned represents that he is duly authorized to act on behalf of the Grantee, and (2) the Grantee agrees to the general and special conditions.

BY AND ON BEHALF OF THE GRANTEE:

Signature of Authorized Representative — Date
Name:
Title:

Please return to:

Department of Environmental Protection
Bureau of Solid and Hazardous Waste
Waste Reduction Section - M.S. # 4570
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

List of attachments/exhibits included as part of this Agreement:

Specify Type	Letter/ Number	Description (include number of pages)
Attachment	A	Project Work Plan (2 Pages)
Attachment	B	Grant Proposal (10 Pages)
Attachment	C	Certification by Engineer or Other Qualified Professional (1 Pages)
Attachment	D	Payment Request Form (1 Page)
Attachment	E	Special Audit Requirements (5 Pages)
Attachment	F	Property Reporting Form (1 Page)
Attachment	G	Quality Assurance Requirements (9 Pages)

County Project Manager

Name: Adam Schlachter, Leon County Recycling Coordinator
Address: Leon County Landfill
7550 Apalachee Parkway
Tallahassee, FL 32311
Phone: (850) 414-9346 E-mail: schlachtera@leoncountyfl.gov

FEID Number: 596000708

Task	Activities	Deliverables	Cost	In-Kind	Grant	Schedule 1Q	2Q	3Q	4Q	5Q	6Q
Purchase and set up gas chromatograph and chamber equipment to measure sulfur gas emissions from landfills	Specialized equipment is required to measure the response of Sulfur gas emissions to the bio-cell and M1 steel cell treatments. We will use Teflon dynamic chambers to measure gas emissions and a gas chromatograph with a Flame Photometric detector to measure Sulfur gas concentrations	1) Description of Gas Chromatograph	$36,000	$5,000	$31,000	X					
Survey the landfill with a portable methane emission detector to locate hot spots of landfill gas emission.	We will use a portable device (that we already have) with a flame ionization detector which we can use to survey the landfill for gas emission hotspots.	2) Contour map of detector readings	$10,650	$5,000	$5,650	X	X				
Measure gas emissions from hot spots prior to treatment with bio-cells and chem.-iron cells	We will use our chamber techniques and measure methane and hydrocarbon gases emissions from a number of "hot spots" of landfill gas emission prior to treatment. Sulfur gas emissions will be treated in a separate task below. Methane concentrations will be measured by flame ionization gas chromatography in our lab at FSU/FAMU.	3) Contour map of methane emissions	$19,100	$5,000	$14,100	X	X				
Tire transportation and processing	Transport Tire chips and M1 steel to Leon County Landfill		$20,000	$5,000	$15,000	X	X				
Construction of Biocells	Construction of biocells. Supervision of construction of all trenches, placement of materials, etc.	3) An As-built Drawing of Biocells.	$13,500	$10,000	$3,500		X				
Intrumentation of Biocells	Install thermocouples, water content reflectrometers at several depth of the biocell to monitor temperature and water content. Install data collection system powered with solar panel and rechargeable battery		$11,500	$0	$11,500		X				

C1

ATTACHMENT # 1 PAGE 10 OF 38

Task	Activities	Deliverables	Cost	In-Kind	Grant	1Q	2Q	3Q	4Q	5Q	6Q
Monitoring of Biocells	Monitor emissions from biocells, following their construction for 9 months. Methane and NMOC emissions would be monitored with the chamber techniques and FID gas chromatography as described in Task 3. NMOC's will be measured at a contract lab in California.		$47,500	$4,000	$43,500		X	X	X	X	X
Lab Columns	Lab studies to maximize sulfide uptake by M1 steel. Initial column studies in the laboratory will investigate the best ways to mobilize the M1 steel to increase its availability to sulfur. Variables studies		$22,500	$0	$22,500	X	X	X			
Construction of Biocells with M1 Steel tire chips and compost	Construct field biocell with M1 steel on C&D site.		$24,600	$10,000	$14,600			X			
Monitoring of Biocells with M1 Steel	Measure emissions from biocells with M1steel for a 9 months period		$10,150	$0	$10,150			X	X	X	X
Management of Project	Manage the progress of project	4) Quarterly Financial reports	$12,000	$2,000	$10,000	X	X	X	X	X	X
Prepare quarterly and final reports		5) Quarterly progress reports	$15,000	$5,000	$10,000	X	X	X	X	X	X
Information Transfer		6) Website, workshops	$15,500	$7,000	$8,500				X	X	X
Totals			**$258,000**	**$58,000**	**$200,000**						

ATTACHMENT # 1
PAGE 11 OF 38

Leon County
Solid Waste Management Division
7550 Apalachee Parkway, Tallahassee, FL 32311
Phone: (850) 487-2890 Fax: (850) 922-9219

Project Information (on applicant letterhead)

1) Applicant Name: Leon County (in partnership with Florida State University and Florida A&M University).
2) Primary contact person: Nancy Hopkins Paul
3) Complete Address: Leon County Recycling Coordinator, 7550 Apalachee Parkway, Tallahassee, FL 32311
4) Telephone Number(s) (including SunCom number): Phone:(850) 414-9346
5) E-mail address: : *PaulN@mail.co.leon.fl.us*
6) Project Title: Beneficial Reuse of Waste Materials (tire chips, glass cullet, M1 tire steel and yard waste) to Control Odors and Methane Release from Landfills.
7) Grant Request Amount: $192,850 (with an additional $58,000 of in kind matching)
8) Length of project (months): 12

_____
Authorizing Signature

_____
Title

PROJECT ABSTRACT

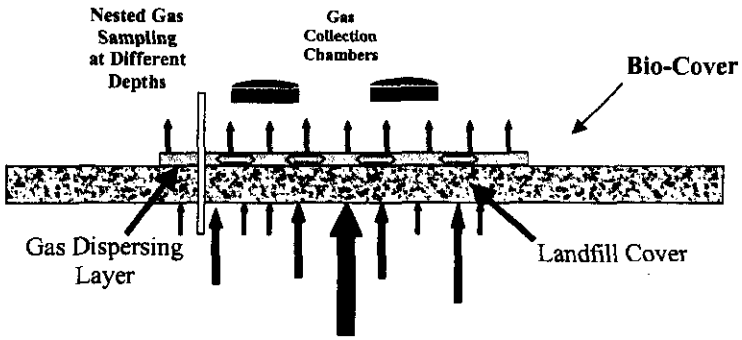
(No more than 20 lines. Every word over 20 lines will result in a one point deduction by grant application reviewers.)

Leon County proposes to team-up with Florida A&M and Florida State University to use tire chips, M1 steel (a waste product from the chipping of tires for which there is currently no use whatsoever), glass cullet, ground pallets and yard waste to construct (1) bio-cells capable of reducing odors and methane and organic compound emissions and (2) iron-containing cells to capture odorous sulfur gas emissions from landfills. The waste materials, tire chips, glass cullet and M1 steel, will be mixed with mulched yard waste and ground pallets and applied to the landfill surface as a "biocover." The bio-cells will serve as attachment sites for methanotrophic bacteria and as a place for the reduced gases (methane and H_2S) to mix and co-mingle with O_2 in the presence of bacteria and tire iron. These bacteria specifically oxidize methane and other odor producing gases to form biomass and carbon dioxide (odorless). Hot spots of gas emission on the landfill surface will be identified with a portable gas analyzer. Emissions will be quantified and then a treatment of either glass cullet or waste tire chips mixed with compost will be applied. Different treatments will be investigated. Laboratory and field studies will be conducted to optimize the mobilization of iron from M1 steel in a field bio-cell application. Iron is quite reactive to hydrogen sulfide, a particularly foul smelling toxic compound that is released from C&D landfills from the decay of gypsum in sheetrock or wallboard. We anticipate that the iron in M1 steel can be used to sequester hydrogen sulfide as inert iron sulfide minerals. This project would target waste tires, which have a disposal fee and fund Florida's Solid Waste Management Trust Fund. M1 steel has no use and is land-filled. We calculate that a 1 meter thick cover spread over an acre would use roughly 4500 cubic yards of waste material.

PROJECT DESCRIPTION (1 page)

Leon County Landfill and many other landfills across the state and country make bad neighbors due to emissions of odors associated with the decomposition of buried waste (Tallahassee Democrat, May 31, 2004). Waste decomposition in a modern landfill occurs under anoxic conditions resulting in the formation of reduced gases such as methane (CH_4), hydrogen sulfide (H_2S) and volatile reduced hydrocarbons (non-methane organic compounds, NMOCs). In larger landfills, federal regulations require active gas collection and flaring, but in smaller older facilities these systems are not required and are not feasible economically. Gas collection systems are also not required in C&D landfills. However, in all landfills, even landfills with gas collection systems, hot spots of gas release develop due to heterogeneity in the buried waste or soil cover, weaknesses in the soil cover or drying and desiccation followed by cracking of the soil itself. We propose to use mixtures of *tire chips, M1 steel, glass cullet, ground pallets and mulched yard waste* to treat and eliminate these emissions.

Recently, it has been learned that within the oxidized outer layer of soil covering landfills reside bacteria which specialize in consuming methane and NMOCs, thus attenuating their release to the atmosphere. Efforts have been devoted towards the design of approaches for measuring the effectiveness of these bacteria and for designing covers that optimize their performance. The reactivity of hydrogen sulfide (H_2S) has not been determined in these systems, but H_2S participates readily in chemical reactions with iron and oxygen, and can react to form either elemental sulfur or iron minerals, both of which are relatively inert.



We propose to construct biocells to oxidize methane and NMOCs, and iron-containing cells to oxidize and consume H_2S using waste materials: tire chips, M1 steel, glass cullet and mulched yard waste and pallets. These cells would be designed to enhance both biological and chemical oxidation of reduced gases. The cells would be placed over emission hotspots located by visual inspection and with a portable gas analyzer. Gas emissions would be quantified before and after placing the proposed cells over the hot spots and the effectiveness of the biocell in reducing gas emission would be monitored over time. The idea is to construct an area where prolonged contact of the reduced gases and oxygen can co-mingle in the presence of bacteria, iron and moisture thus providing an optimum environment for the elimination of these odorous and infrared active compounds. The biocells will be constructed based on the previous experience developed by the team in designing compost biocells. Laboratory testing will be performed to optimize the effectiveness of steel shards in tire scraps (M1 steel) for the sequestration of H_2S through its reaction with iron. A field scale trial over a C&D landfill will then be constructed.

We have access to instrumentation to measure and analyze methane and hydrocarbon gases, but request funds to purchase and set up a state of the art facility for the analysis of sulfur gases including but not limited to H_2S. This would allow us to address the effectiveness of our recycling effort in the reduction of odors from landfills in a quantitative way.

Criteria 1: TECHNOLOGIES (1 page)

(35 points) 0-15 points for meeting one of the following sub-criteria, up to10 more points for meeting two, and up to 10 more points for meeting all three

Sub-criteria 1 – Not in common use in Florida

This project will demonstrate a novel use of waste materials (waste tire recycling by-product, spent pallet waste from the commercial sector and mulch from residential yard waste collections) to reduce environmental pollution and make landfills more acceptable to their surrounding communities. The reuse or recycling of the targeted materials for the control of noxious gas emissions and odor reduction from landfills is not a common practice in Florida or in the United States. Currently in the USA only two studies have been conducted using bio-covers to reduce methane and NMOC emissions. One study was recently conducted by Waste Management Corporation at the Outer Loop Landfill near Louisville Kentucky. A biocover was constructed to consist of a 15cm thick layer of tire chips covered with a meter of shredded yard waste. The study concluded that such biocovers can reduce landfill gas emissions in the absence of a gas collection system and can serve as a polishing step in the presence of an active system. A second study is being conducted by the FSU/FAMU team (Drs. Abichou & Chanton) at the Leon County Landfill. This study employs biocovers consisting of 10 cm layers of glass cullet overlain by variable thickness and ages of mulched yard waste. In both of these studies, the tires and glass cullet serve as gas distribution layers with primary treatment provided by the compost layer. A third biocover study has been conducted in Austria by Marion Humner for her Ph.D. work. This biocover consisted of a 30 cm gravel layer overlain by a meter of mulched yard waste mixed with sewage sludge. Interestingly, Dr. Hummer found that a considerable fraction of the methane and NMOC oxidation occurred in the gravel layer. Chanton/Abichou have observed similar findings in meso-scale laboratory studies, the distribution layer of glass or gravel can oxidize substantial quantities of methane.

This proposal builds on the previous work by expanding the distribution layer to be the primary treatment area. Thus we intend to construct cells three types of cells. Two types will contain primarily tire chips or primarily glass cullet. Both of these substrates will be mixed with 10 to 25% compost & ground pallets to retain moisture. This expanded use of tire chips and glass relative to compost has not been utilized previously. A third type of cell will investigate the use of steel chards from tires (M1 steel) to control hydrogen sulfide; to our knowledge, this has not been tried elsewhere.

Sub-criteria 2 – Novel application of an existing technology or process.

This proposal is to use recycled materials in a unique way to construct biological and chemical filters to reduce the emission of a powerful greenhouse gas (methane), toxic and carcinogenic hydrocarbons (NMOC's) and odorous compounds (NMOC and sulfur containing gases from landfill. This will make landfills better neighbors and raise property values in areas surrounding landfills.

Sub-criteria 3 – Overcoming obstacles to recycling/waste reduction in new or innovative ways

Creating uses for M1 steel is particularly important; currently it has no use whatsoever. It is just buried in landfills. Over 15 million waste tires are estimated to be generated in Florida annually and 70% of those tires that are collected and transported for "recycling" are burned as Tire Derived Fuel (TDF). A very small percentage of processed/recycled tires are used for innovative products in Florida (e.g., sport track and field surfaces, playground equipment and underlaument, and septic drain-field materials).

Criteria 2: TARGETS
(1 page)

(10 Points) Demonstrate innovative processes to collect and recycle or reduce these targeted materials/sectors: Construction and Demolition Materials, Commercial/Institutional Sectors, Waste Tires. Note: if the proposed project also includes materials/sectors other than those targeted by this criteria, the project will receive less than the maximum 10 points allocated for the criteria.

This project would provide the necessary information/data and field trials to demonstrate the widespread usefulness of processed tires chips and M1 steel, a by product from the production of tire chips for which there is currently no use whatsoever. We will also use glass cullet, mulched yard wasted and ground pallets. Our objective is to control landfill gas emission with the aim of odor abatement. This project, if successful, would reduce the market obstacles faced by the targeted materials. As an example, over 15 million waste tires are estimated to be generated in Florida annually and 70% of those tires that are collected and transported for "recycling" are burned as Tire Derived Fuel (TDF). A very small percentage of processed/recycled tires are used for innovative products in Florida (e.g., sport track and field surfaces, playground equipment and underlaument, and septic drain-field materials). Production of these innovative products generates M1 steel which is of no use. M1 steel is a "brillo"-like material with rubber tire pieces within it.

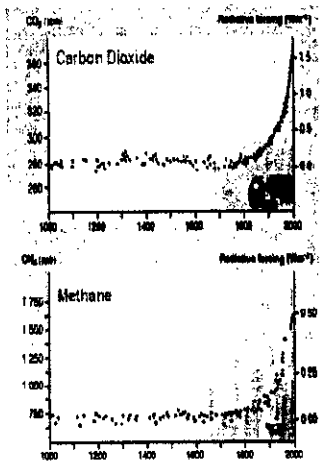
This innovative project will demonstrate effective solutions to solving solid waste problems resulting from the project's targeted materials, particularly in the areas of enforcement and abatement of illegal tire dumping and activities to promote market development of waste tire products.

This project would use Leon County tires described above, transport them to Jacksonville's ART (Advanced Rubber Technology) for size processing, and then bring these processed tires and M1 steel to the Leon County landfill for construction of gas abatement biocells.

Leon and surrounding counties in the panhandle of Florida currently have no other market outlets for waste tires. Tires are shredded or cut to minimum size requirements (set by DEP rule) and either land-filled or used as Tire Derived Fuel in permitted industrial boilers, mostly outside the state. In addition to waste tires, this project will utilize glass cullet, ground pallets and composted yard waste. It would be acceptable for the yard waste to contain shreds of plastic bags.

A large portion of the glass cullet will come from fluorescent light tubes. A commercial facility in Leon County removes mercury from these tubes and deposits the chipped glass at the Leon county landfill where it is stored in large piles. Our project would utilize this waste material.

Criteria 3: BENEFITS (1 page)



(35 points) Demonstrate the potential economic, environmental, and cost-effectiveness of the program's approach.

Sub-criteria 1 - Environmental Benefits (15 points)

Methane (CH_4) is a greenhouse gas with an infrared activity 25 times that of CO_2. Its concentration has increased in the atmosphere by a factor of 2 over the last century (Fig.). The bulk of CH_4 emissions are anthropogenic and could be reduced. On a global scale, landfills make up 40 Tg/yr of a 500 Tg/yr total source, 8%. The imbalance between sources and sinks of CH_4 in the global budget is less that 6% of the total of global sources so a small decrease in CH_4 source strength could result in stabilization of atmospheric CH_4 or even better, a reduction in the atmospheric concentration. As CH_4 is a more potent greenhouse agent than is CO_2, lowering the atmospheric CH_4 concentration is a very realistic and worthwhile goal. The relatively short residence time of CH_4 in the atmosphere (7-10 yr) relative to CO_2 (100 yr) means that the effects of mitigation efforts would be rapidly observed. Furthermore, CH_4 has no constituency, and grappling with the problem of excess greenhouse gases in the atmosphere (Figure) could be easily approached by reducing CH_4 emissions.

In addition to CH_4, landfill gas contains trace organic compounds (NMOCs) at pptv to ppmv levels including alkanes, aromatics, chlorinated aliphatic hydrocarbons, alcohols, ketones, terpenes, chlorofluoro compounds (CFCs), and siloxanes. Emission of NMOCs is a potential risk to human health, as compounds like vinyl chloride and benzene are proven carcinogens. Many of these compounds biodegrade under aerobic conditions, so that a cover that enhances CH_4 oxidation will also result in decreased emissions of trace organic compounds. Many of these NMOC's produce odors, and are partly responsible for the bad smells associated with modern landfills. Hydrogen sulfide is sulfur (S) containing gas produced from the reduction of calcium sulfate (gypsum) in wall board. It is a toxic volatile gas with a smell like rotten eggs. It is highly reactive with oxygen and with iron in steel.

Sub-criteria 2 – Economic Benefits (10 Points)

Because this project supports the utilization of a waste products (M1 tire steel), mixed glass cullet from the curbside recycling program and waste fluorescent tube glass, for which there very limited markets:

- ART (American Rubber Technology) will be able to reduce its disposal costs,
- Duval County's waste stream will be reduced (currently $78/ton), (this is where the M1 steel currently is landfilled)
- Leon County's waste tire disposal costs will be reduced,
- Leon County will be demonstrating that landfills can, with proper odor control, be a good neighbor to surrounding residential neighborhoods, and
- Landfill management and recycling programs can compliment each other.
- **Sub-criteria 3 – Cost Effectiveness (10 Points)** Includes, but not limited to cost reduction, payback period, sustainability, and cost-effectiveness.

With increasing transportation costs for moving materials to markets, it is important for local governments to seek local markets for its recovered materials. With the State's permission to use these types of projects as recycling credit, overall solid waste management practices will improve. Additionally, passive gas treatment systems such as the one proposed here are much more cost effective than the installation of conventional landfill gas management strategies such as vacuum gas extraction and flaring.

Criteria 4: TRANSFERABILITY

(1 page)

(10 Points) Demonstrate transferability of technology and processes and specify how the project will promote transferability. Note: applicant may adjust space used to address each sub-criteria.

Sub-criteria 1 – Transferability of technology and processes (5 points)

The technology used in this Innovative project will be easy to duplicate and transfer to other public and private solid waste management facilities. The practices developed from this project can easily be incorporated into any post closure operating plan. The Leon County facility has an intermediate rather than a final cover situation which allows it to reserve existing capacity for emergency situations. This technology may allow similar landfills this same option for emergency capacity as regional landfills become the norm. Across the state there are 160 Construction demolition (C&D) landfills, 60 class 1 landfills and 34 class 3 landfills. Many of the 160 C&D landfills are privately owned. The technology would be applicable to every landfill both during ongoing landfilling operations and in final closure stages. Used tires, compost and glass cullet are waste streams which are widely available. We calculate that a 1 meter thick cover spread over an acre would use roughly 4500 cubic yards of waste material.

Sub-criteria 2 – How project will promote transferability (5 points)

With over 95 active Class I, II and III landfills and 163 active C&D landfills in Florida and many others closed and regulated or monitored, the potential for this project to transfer knowledge, data, and processes is documented and necessary. Reducing landfill gas emission is of primary importance, both in terms of odors and greenhouse gas production. With the partnership established here, FSU, FAMU and Leon County, transferability of data and information garnered from this project is guaranteed. FSU/FAMU School of Engineering with the help of the Service Learning Program at FSU will establish a mentoring program for other counties, particularly small rural counties in North Florida. One of the deliverables from this project will be a Best Management Practices Manual for Passive Management of Landfill Gases and Odors. Chanton and Abichou are both effective public speakers and will visit other counties across the state to advise them on the practices necessary to adopt the practices developed here. A power point presentation will be developed and a placed on a web site which will document the project. Information will be given in presentation to the Florida Association of Counties and article written for American City and County magazine. We will also contact local newspapers and television stations about this work. A Technical Advisory Group will also be formed for the project. This group will have quarterly meeting to review and guide the research activities throughout the duration of the project. Publications would be written for the scientific literature.

Jeff Chanton and Tarek Abichou are on the faculty of Florida State University and the FAMU/FSU College of Engineering respectively. Chanton has worked with greenhouse gas emissions in a number of settings from landfills, to northern wetlands to the deep sea. His landfill experience includes work in Florida, Kentucky, France and Sweden. Abichou is an civil/environmental engineer and specializes in alternative covers for landfills. He has been involved with EPA and NSF funded projects to manage water infiltration and gas emissions from a number of landfill setting across the USA.

Criteria 5: LOCAL SUPPORT
(1 page)

(10 Points) Demonstrate local support for the proposed project in commitment of cash or in-kind matching funds.

- **00 points 0% up to and including 1% of total project cost**
- **01 points Greater than 1% up to and including 10% of total project cost**
- **02 points Greater than 10% up to and including 20% of total project cost**
- **03 points Greater than 20% up to and including 30% of total project cost**
- **04 points Greater than 30% up to and including 40% of total project cost**
- **05 points Greater than 40% up to and including 50% of total project cost**
- **06 points Greater than 50% up to and including 60% of total project cost**
- **07 points Greater than 60% up to and including 70% of total project cost**
- **08 points Greater than 70% up to and including 80% of total project cost**
- **09 points Greater than 80% up to and including 90% of total project cost**
- **10 points Greater than 90% up to and including 100% of total project cost**

As the budget reflects, there is a 30% match of the $192,850 budget request. Project partners are dedicated to this project and are confident that results will provide methods of reducing green house gases, reducing odors associated with landfills and contribute to the long term care of Florida's environment.

In kind matches are faculty time devoted to the project while Chanton and Abichou are on their regular 9 month appointments, Leon County support in terms of equipment operation and construction. American Rubber Technology use of permits and hauling, and use of FSU/FAMU facilities and equipment.

BUDGET (1 page using Budget Table Template)

Task 1. Purchase and set up gas chromatograph and chamber equipment to measure sulfur gas emissions from landfills. Specialized equipment is required to measure the response of Sulfur gas emissions to the bio-cell and M1 steel cell treatments. We will use Teflon dynamic chambers to measure gas emissions and a gas chromatograph with a Flame Photometric detector to measure Sulfur gas concentrations. Chanton (FSU) has considerable experience with gas chromatography. Additionally a permeation tube device is required to calibrate the gas chromatograph. Total costs for the gas chromatograph and permeation tube system is $20,000. Personnel to set up the device and get it working is estimated at 2 technician months time at $7000. An additional $4000 in supplies for the construction of dynamic chambers is also requested. In kind match of Chanton's time $5000.

Task 2. Survey the landfill with a portable methane emission detector to locate hot spots of landfill gas emission. We possess a portable device with a flame ionization detector which we can use to survey the landfill for gas emission hotspots. With a GPS we will locate these spots. Time estimated, 1.5 technician-months @ $5250. Supplies include calibration gases and spare parts, $400. In kind match of $5000 for use of equipment @FSU/FAMU.

Task 3. Measure gas emissions from hot spots prior to treatment with bio-cells and chem.-iron cells. We will use our chamber techniques and measure methane and hydrocarbon gases emissions from a number of "hot spots" of landfill gas emission prior to treatment. Sulfur gas emissions will be treated in a separate task below. Methane concentrations will be measured by flame ionization gas chromatography in our lab at FSU/FAMU. NMOCs will be measured at a contract lab in California at a cost of $3000. We estimate this portion of the project will consume 3 person months @ $10,500. Supplies of $600 will be consumed, calibration gases, carrier gases, sample containers, batteries. In kind match of $5000 for use of equipment @FSU/FAMU.

Task 4a. Tire transportation and processing Contractor, American Rubber Technologies to shred and haul tires, $15,000 plus an in-kind match of $5,000 for permits and hauling.
Task 4b. Construction of biocells. Supervision of construction 1 person month of time, $3500. In kind match, Leon County landfill, heavy equipment operation $10,000.
Task4c. Install thermocouples, water content reflectrometers at several depth of the biocover to monitor temperature and water content. Install data collection system powered with solar panel and rechargeable battery $11,500

Task 5. Monitor emissions from biocells, following their construction for 9 months. Methane and NMOC emissions would be monitored with the chamber techniques and FID gas chromatography as described in Task 3. NMOC's will be measured at a contract lab in California at a cost of $7000. We estimate 9 months of technician time at $31,500, $5000 for lab and field supplies. In kind match of $5000 for equip. @ FSU.
Task 6. Lab studies to maximize sulfide uptake by M1 steel. Initial column studies in the laboratory will investigate the best ways to mobilize the M1 steel to increase its availability to sulfur. Variables studies will be exposure to moisture, oxygen and grain size and packing density of the M1 steel. We estimate 5 person-months at $17,500 and $5000 for laboratory supplies including columns, chemicals and reagents.

Task 7. Construct field biocell with M1 steel on C&D site. Labor, 1 person month at $3500, supplies $600, $10,000 contractual to American Rubber Technologies. In kind match of $5000 by Leon County for heavy equipment operation. Match of $5000 from American Rubber for permits and hauling, Permit, $500, other.

Task 8. Measure gas emissions from M1 steel biocell. Will use Sulfur gas chambers and analyzer. Four months of technician time estimated, $14,000, lab supplies including high purity gasses for the gas chromatograph, standards, field supplies @ $4000.
Task 9. Manage and administer project. Leon County $10,000.
Task 10. Prepare quarterly and final reports. Leon County - $10,000.
Task 11. Transfer information gained in this project: Abichou and Chanton workshops and seminars mentoring other counties, local workshop (in other), $4000 In kind match, $7000. Travel, $3000, projector $1500

Applicant: Leon County								Project Title: Use of Waste Materials (tire chips, glass cullet, M1 tire steel and yard waste)			
Budget											
	Categories								**Local Match**		
(1) **Tasks**	(2) Personnel	(3) Travel	(4) Equipment	(5) Supplies	(6) Contractual	(7) Construction	(8) Other	(9)* Total Budget	(10) In-Kind Match	(11) Cash Match	(12) Total Grant Request
1. Purchase and set up gas chromatograph and chamber equipment to measure sulfur gas emissions from landfills	$7,000		$20,000	$4,000		$5,000		$36,000	$5,000		$31,000.00
2. Scan sites with portable emission detector to locate hot spots	$5,250			$400			$5,000	$10,650	$5,000		$5,650.00
3. Measure gas emissions from hot spots	$10,500		$5,000	$600	$3,000			$19,100	$5,000		$14,100.00
4a. Tire transportation and processing					$15,000		$5,000	$20,000	$5,000		$15,000.00
4b. construct biocells	$3,500					$10,000		$13,500	$10,000		$3,500.00
4c. Monitor temperature and water content in cells	$3,500		$8,000					$11,500			$11,500.00
5. monitor emissions from biocells	$31,500			$5,000	$7,000		$4,000	$47,500	$4,000		$43,500.00
6. Lab studies to maximize sulfide uptake by M1 steel	$17,500			$5,000				$22,500			$22,500.00
7. construct field biocell with M1 steel on C&D site	$3,500			$600	$10,000	$10,000	$500	$24,600	$10,000		$14,600.00
8. Measure gas emissions from M1 steel biocell	$6,150			$4,000				$10,150			$10,150.00
9. Manage and administer project	$12,000							$12,000	$2,000.00		$10,000.00
10.Prepare quarterly and final reports	$10,000				$5,000			$15,000	$5,000.00		$10,000.00
11. Technology Transfer	$7,000	$3,000		$1,500			$4,000	$15,500	$7,000.00		$8,500.00
TOTALS	$117,400	$3,000	$33,000	$21,100	$40,000	$25,000	$18,500	$258,000	$58,000	$0.00	$200,000

* NOTE: Column 9 is the total of columns 2 through 8. It also should equal the total of columns 10-12

Percentage Match 22%

CERTIFICATION BY ENGINEER OR OTHER QUALIFIED PROFESSIONAL

I, the undersigned authorized representative of Leon County County, certify that I have reviewed the Innovative Recycling Grant proposal, including the detailed scope of services for this project, and evaluated those impacts on the environment and public health which might reasonably be expected to result from the implementation of this project. In my professional judgment, this project, if implemented in accordance with the detailed scope of services, will comply with all applicable rules of the Department and will not create a significant threat to public health or the environment. I also agree to provide the Project Manager with a set of instructions for proper implementation of the project if needed as part of this Certification.

Signature

Norm Thomas, Solid Waste Director
Name and Title (please type or print)

7550 Apalachee Pkwy
Mailing Address

Tallahassee, FL 32311
City, State, Zip Code

850-488-1505
Telephone Number

7/6/05
Date

ATTACHMENT D

PAYMENT REQUEST SUMMARY FORM

GRANTEE: Leon County

DEP AGREEMENT NO.: IG06-01

GRANTEE'S GRANT MANAGER:
Adam Schlachter
PAYMENT REQUEST NO.: _____

DATE OF REQUEST: _____

PERFORMANCE PERIOD COVERED: _____

AMOUNT REQUESTED THIS PERIOD: _____

TOTAL MATCHING FUNDS REQUIRED: _____

GRANT EXPENDITURES SUMMARY SECTION

[Effective Date of Grant through End-of-Grant Period]

CATEGORY OF EXPENDITURE	AMOUNT OF THIS REQUEST	TOTAL CUMULATIVE PAYMENTS	MATCHING FUNDS
Salaries	$	$	$
Fringe Benefits	$	$	$
Travel (if authorized)	$	$	$
Subcontracting:			
	$	$	$
	$	$	$
	$	$	$
	$	$	$
Land Purchase	$	$	$
Equipment Purchases*	$	$	$
Supplies/Other Expenses	$	$	$
TOTAL INVOICES SUBMITTED	$	$	$
Less 5% (unless final invoice)	$		
Amount Retained (for final invoice only)	$		
Total Reimbursement Requested	$		
Less Total Cumulative Payments of:	$		
TOTAL REMAINING IN GRANT	$		

*Single purchases over $1,000. See Attachment F

GRANTEE CERTIFICATION

The undersigned certifies that the amount being requested for reimbursement above was for items that were charged to and utilized only for the above-cited grant activities.

Grantee's Grant Manager's Signature	Grantee's Fiscal Agent
Print Name Adam Schlachter	Print Name
Telephone Number 850-414-9346	Telephone Number

ATTACHMENT E

SPECIAL AUDIT REQUIREMENTS

The administration of resources awarded by the Department of Environmental Protection *(which may be referred to as the "Department", "DEP", "FDEP" or "Grantor", or other name in the contract/agreement)* to the recipient *(which may be referred to as the "Contractor", Grantee" or other name in the contract/agreement)* may be subject to audits and/or monitoring by the Department of Environmental Protection, as described in this attachment.

MONITORING

In addition to reviews of audits conducted in accordance with OMB Circular A-133 and Section 215.97, F.S., as revised (see "AUDITS" below), monitoring procedures may include, but not be limited to, on-site visits by Department staff, limited scope audits as defined by OMB Circular A-133, as revised, and/or other procedures. By entering into this Agreement, the recipient agrees to comply and cooperate with any monitoring procedures/processes deemed appropriate by the Department of Environmental Protection. In the event the Department of Environmental Protection determines that a limited scope audit of the recipient is appropriate, the recipient agrees to comply with any additional instructions provided by the Department to the recipient regarding such audit. The recipient further agrees to comply and cooperate with any inspections, reviews, investigations, or audits deemed necessary by the Chief Financial Officer or Auditor General.

AUDITS

PART I: FEDERALLY FUNDED

This part is applicable if the recipient is a State or local government or a non-profit organization as defined in OMB Circular A-133, as revised.

1. In the event that the recipient expends $500,000 or more in Federal awards in its fiscal year, the recipient must have a single or program-specific audit conducted in accordance with the provisions of OMB Circular A-133, as revised. EXHIBIT 1 to this Agreement indicates Federal funds awarded through the Department of Environmental Protection by this Agreement. In determining the Federal awards expended in its fiscal year, the recipient shall consider all sources of Federal awards, including Federal resources received from the Department of Environmental Protection. The determination of amounts of Federal awards expended should be in accordance with the guidelines established by OMB Circular A-133, as revised. An audit of the recipient conducted by the Auditor General in accordance with the provisions of OMB Circular A-133, as revised, will meet the requirements of this part.

2. In connection with the audit requirements addressed in Part I, paragraph 1., the recipient shall fulfill the requirements relative to auditee responsibilities as provided in Subpart C of OMB Circular A-133, as revised.

3. If the recipient expends less than $500,000 in Federal awards in its fiscal year, an audit conducted in accordance with the provisions of OMB Circular A-133, as revised, is not required. In the event that the recipient expends less than $500,000 in Federal awards in its fiscal year and elects to have an audit conducted in accordance with the provisions of OMB Circular A-133, as revised, the cost of the audit must be paid from non-Federal resources (i.e., the cost of such an audit must be paid from recipient resources obtained from other than Federal entities).

4. The recipient may access information regarding the Catalog of Federal Domestic Assistance (CFDA) via the internet at **http://12.46.245.173/cfda/cfda.html**.

PART II: STATE FUNDED

This part is applicable if the recipient is a nonstate entity as defined by Section 215.97(2)(l), Florida Statutes.

1. In the event that the recipient expends a total amount of State financial assistance equal to or in excess of $500,000 in any fiscal year of such recipient, the recipient must have a State single or project-specific audit for such fiscal year in accordance with Section 215.97, Florida Statutes; applicable rules of the Executive Office of the Governor and the Chief Financial Officer; and Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General. EXHIBIT 1 to this Agreement indicates State financial assistance awarded through the Department of Environmental Protection by this Agreement. In determining the State financial assistance expended in its fiscal year, the recipient shall consider all sources of State financial assistance, including State financial assistance received from the Department of Environmental Protection, other state agencies, and other nonstate entities. State financial assistance does not include Federal direct or pass-through awards and resources received by a nonstate entity for Federal program matching requirements.

2. In connection with the audit requirements addressed in Part II, paragraph 1, the recipient shall ensure that the audit complies with the requirements of Section 215.97(7), Florida Statutes. This includes submission of a financial reporting package as defined by Section 215.97(2)(d), Florida Statutes, and Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General.

3. If the recipient expends less than $500,000 in State financial assistance in its fiscal year, an audit conducted in accordance with the provisions of Section 215.97, Florida Statutes, is not required. In the event that the recipient expends less than $500,000 in State financial assistance in its fiscal year and elects to have an audit conducted in accordance with the provisions of Section 215.97, Florida Statutes, the cost of the audit must be paid from the non-State entity's resources (i.e., the cost of such an audit must be paid from the recipient's resources obtained from other than State entities).

4. For information regarding the Florida Catalog of State Financial Assistance (CSFA), a recipient should access the Florida Single Audit Act website located at http://state.fl.us/fsaa/catalog or the Governor's Office of Policy and Budget website located at http://www.myflorida.com/myflorida/government/contacts/opbOffice.html for assistance. In addition to the above websites, the following websites may be accessed for information: Legislature's Website http://www.leg.state.fl.us/, Governor's Website http://www.myflorida.com/, Department of Financial Services' Website http://www.dbf.state.fl.us/ and the Auditor General's Website http://www.state.fl.us/audgen.

PART III: OTHER AUDIT REQUIREMENTS

(NOTE: This part would be used to specify any additional audit requirements imposed by the State awarding entity that are solely a matter of that State awarding entity's policy (i.e., the audit is not required by Federal or State laws and is not in conflict with other Federal or State audit requirements). Pursuant to Section 215.97(7)(m), Florida Statutes, State agencies may conduct or arrange for audits of State financial assistance that are in addition to audits conducted in accordance with Section 215.97, Florida Statutes. In such an event, the State awarding agency must arrange for funding the full cost of such additional audits.)

PART IV: REPORT SUBMISSION

1. Copies of reporting packages for audits conducted in accordance with OMB Circular A-133, as revised, and required by PART I of this Attachment shall be submitted, when required by Section .320 (d), OMB Circular A-133, as revised, by or on behalf of the recipient directly to each of the following:

A. The Department of Environmental Protection at the following address:

Audit Director
Florida Department of Environmental Protection
Office of the Inspector General, MS 40
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

B. The Federal Audit Clearinghouse designated in OMB Circular A-133, as revised (the number of copies required by Sections .320 (d)(1) and (2), OMB Circular A-133, as revised, should be submitted to the Federal Audit Clearinghouse), at the following address:

Federal Audit Clearinghouse
Bureau of the Census
1201 East 10th Street
Jeffersonville, IN 47132

C. Other Federal agencies and pass-through entities in accordance with Sections .320 (e) and (f), OMB Circular A-133, as revised.

2. Pursuant to Section .320(f), OMB Circular A-133, as revised, the recipient shall submit a copy of the reporting package described in Section .320(c), OMB Circular A-133, as revised, and any management letters issued by the auditor, to the Department of Environmental Protection the following address:

Audit Director
Florida Department of Environmental Protection
Office of the Inspector General, MS 40
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

3. Copies of financial reporting packages required by PART II of this Attachment shall be submitted by or on behalf of the recipient directly to each of the following:

A. The Department of Environmental Protection at the following address:

Audit Director
Florida Department of Environmental Protection
Office of the Inspector General, MS 40
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

B. The Auditor General's Office at the following address:

State of Florida Auditor General
Room 401, Claude Pepper Building
111 West Madison Street
Tallahassee, Florida 32399-1450

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

4. Copies of reports or management letters required by PART III of this Attachment shall be submitted by or on behalf of the recipient directly to the Department of Environmental Protection at the following address:

Audit Director
Florida Department of Environmental Protection
Office of the Inspector General, MS 40
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

5. Any reports, management letters, or other information required to be submitted to the Department of Environmental Protection pursuant to this Agreement shall be submitted timely in accordance with OMB Circular A-133, Florida Statutes, or Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General, as applicable.

6. Recipients, when submitting financial reporting packages to the Department of Environmental Protection for audits done in accordance with OMB Circular A-133, or Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General, should indicate the date that the reporting package was delivered to the recipient in correspondence accompanying the reporting package.

PART V: RECORD RETENTION

The recipient shall retain sufficient records demonstrating its compliance with the terms of this Agreement for a period of **5** years from the date the audit report is issued, and shall allow the Department of Environmental Protection, or its designee, Chief Financial Officer, or Auditor General access to such records upon request. The recipient shall ensure that audit working papers are made available to the Department of Environmental Protection, or its designee, Chief Financial Officer, or Auditor General upon request for a period of **3** years from the date the audit report is issued, unless extended in writing by the Department of Environmental Protection.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

EXHIBIT – 1

FUNDS AWARDED TO THE RECIPIENT PURSUANT TO THIS AGREEMENT CONSIST OF THE FOLLOWING:

Federal Resources Awarded to the Recipient Pursuant to this Agreement Consist of the Following:					
Federal Program Number	Federal Agency	CFDA Number	CFDA Title	Funding Amount	State Appropriation Category

State Resources Awarded to the Recipient Pursuant to this Agreement Consist of the Following Matching Resources for Federal Programs:					
Federal Program Number	Federal Agency	CFDA	CFDA Title	Funding Amount	State Appropriation Category

State Resources Awarded to the Recipient Pursuant to this Agreement Consist of the Following Resources Subject to Section 215.97, F.S.:						
State Program Number	Funding Source	State Fiscal Year	CSFA Number	CSFA Title or Funding Source Description	Funding Amount	State Appropriation Category
Original Agreement	Solid Waste Management Trust Fund – GAA Line Item 1761	2005-2006	37.050	Innovative Waste Reduction and Recycling Grants		140134

Total Award		[redacted]

For each program identified above, the recipient shall comply with the program requirements described in the Catalog of Federal Domestic Assistance (CFDA) [**http://12.46.245.173/cfda/cfda.html**] and/or the Florida Catalog of State Financial Assistance (CSFA) [http://state.fl.us/fsaa/catalog]. The services/purposes for which the funds are to be used are included in the Contract scope of services/work. Any match required by the recipient is clearly indicated in the Contract.

ATTACHMENT F

PROPERTY REPORTING FORM FOR DEP CONTRACT NO. IG06-01
(For Property With Grantee/Contractor Assigned Property Control Numbers)

GRANTEE/CONTRACTOR: List non-expendable equipment/personal property* costing $1,000 or more purchased under the above Contract. Also list all upgrades* under this contract, costing $1,000 or more, of property previously purchased under a DEP contract (identify the property upgraded and the applicable DEP contract on a separate sheet). Complete the serial no./cost, location/address and property control number columns of this form. The Grantee/Contractor shall establish a unique identifier for tracking all personal property/equipment purchased under this Contract and shall report the inventory of said property, on an annual basis, to the Department's Project Manager, by DEP Contract number, no later than January 31st for each year this Contract is in effect.

DESCRIPTION	SERIAL NO./COST**	LOCATION/ADDRESS	GRANTEE/CONTRACTOR ASSIGNED PROPERTY CONTROL NUMBER

*Not including software. **Attach copy of invoice, bill of sale, or other documentation to support purchase.

GRANTEE/CONTRACTOR:	Grantee's/Contractor's Project Manager:	Date:

BELOW FOR DEP USE ONLY

DEP CONTRACT MANAGER: **MAINTAIN THIS DOCUMENT WITH A COPY OF THE INVOICES SUPPORTING THE COST OF EACH ITEM IDENTIFIED ABOVE IN YOUR CONTRACT FILE. IF THE CONTRACT IS A COST REIMBURSEMENT CONTRACT, MAKE SURE TO SEND INVOICES SUPPORTING THE COST OF THE ITEMS TO FINANCE AND ACCOUNTING FOR THE PROCESSING OF THE GRANTEE'S/CONTRACTOR'S INVOICE FOR PAYMENT. REFER TO DEP DIRECTIVE 320 FOR PROPERTY GUIDELINES.**

DEP Contract Manager Signature: _____ Date: _____

DEP FINANCE AND ACCOUNTING: No processing required by Finance & Accounting as the Grantee/Contractor is responsible for retaining ownership of the equipment/property upon satisfactory completion of the Contract.

DEP PROPERTY MANAGEMENT: No processing required by the Property Management section as the Grantee/Contractor will retain ownership of the equipment/property upon satisfactory completion of the Contract.

ATTACHMENT G

Quality Assurance Requirements

1. All sampling and analyses performed under this Contract must conform to the requirements set forth in Chapter 62-160, Florida Administrative Code (F.A.C.) and "Requirements for Field and Analytical Work performed for the Department of Environmental Protection under Contract" (DEP-QA-002/02), February 2002.

2. **LABORATORIES**
   a. The CONTRACTOR shall ensure that all laboratory testing activities are performed by laboratories certified by the Florida Department of Health Environmental Laboratory Certification Program (DoH ELCP) for all applicable matrix/method/analyte combinations to be measured.
   b. If the laboratory is not certified for some or all of the proposed test measurements, the laboratory shall apply for certification within one month of Contract execution. Within six months of Contract execution, the laboratory shall be fully certified for all applicable matrix/method/analyte combinations to be performed. Regardless of when the laboratory receives certification, the laboratory must implement all applicable standards of the National Environmental Laboratory Accreditation Conference (NELAC) upon Contract execution.
   c. Laboratories shall maintain certification as specified in item 2.a above during the life of the Contract. Should certification for an analyte or test method be lost, all affected tests shall be immediately sub-contracted to a laboratory with current DoH ELCP certification in the appropriate matrix/method/analyte combination(s). The CONTRACTOR shall notify the DEP contract manager in writing before such changes are made.
   d. A copy of the DoH ELCP Certificate and the associated list of specific fields of accreditation for each contracted or sub-contracted laboratory shall be provided to the DEP contract manager upon Contract execution or upon receiving DoH certification (see items 2.a and 2.b above).
   e. The CONTRACTOR shall ensure that an acceptable initial demonstration of capability (IDOC), as described in Appendix C of Chapter 5 of NELAC Standards is performed. Each laboratory that performs any of the proposed matrix/method/analyte combination(s) must have the requisite IDOC documentation and supporting laboratory records. IDOCs shall be performed before the test procedure is used to generate data for this Contract. If requested by the Department, documentation that supports the IDOC shall be made available for review.
   f. When performance test samples are not required by DoH ELCP for certification, or certification is not required (see item 2.g below), the laboratory shall obtain, analyze and evaluate performance test samples, standard reference materials (SRM) or other externally assayed quality control (QC) samples, hereinafter known collectively as quality control check (QCC) samples.
      (i) The laboratory shall ensure that the selected QCC samples(s) represent all matrix/method/analyte combinations that are not subject to certification requirements.
      (ii) These samples shall be analyzed at six-month intervals and the results shall be within the acceptable range established by the QCC sample provider.
      (iii) Before providing analytical services for this Contract, the laboratory must provide to the DEP contract manager the results of the QCC sample(s) and the associated acceptable range(s) as established by the QCC sample provider. The submitted results must be from QCC samples that have been completed within six months prior to the submission date.
   g. For those test measurements for which the Department has determined that certification by the DoH ELCP is not necessary, all laboratory activities associated with the test measurements shall conform to the NELAC Quality Systems (Chapter 5) Standards.
   h. Any non-standard laboratory procedure or methods (i.e., those not approved by DEP for standard environmental analyses) that are proposed for use shall be submitted for review and approval in

accordance with DEP-QA-001/01, "New and Alternative Analytical Laboratory Methods," February 1, 2004. These procedures or methods shall be approved by the DEP contract manager before use under this Contract and must be cited or described in the required planning document (see Section 6).

i. The CONTRACTOR shall ensure that Practical Quantitation Limits (PQLs) and Method Detection Limits (MDLs) are established for the Contract, and are listed in the planning document (see Section 6).

j. The CONTRACTOR shall ensure that the selected laboratory test methods can provide results that meet the Contract data quality objectives.

k. The CONTRACTOR shall ensure that all laboratory testing procedures follow the analytical methods as approved in the planning document (see Section 6).

l. The CONTRACTOR shall ensure that the essential laboratory quality control measures are consistent with Chapter 5 of the NELAC standards. In addition, the CONTRACTOR shall ensure that the quality control requirements specified in the attached addenda are followed.

3. **FIELD ACTIVITIES**

a. "Sample" refers to samples that have been either collected or analyzed under the terms of this Contract.

b. The CONTRACTOR shall ensure that all sample collection and field testing activities are performed in accordance with the Department's "Standard Operating Procedures for Field Activities" (DEP-SOP-001/01, February 1, 2004). The specific standard operating procedures (SOPs) shall be cited in the planning document (see Section 6).

c. Any non-standard field procedure shall be submitted for review and approval to the DEP contract manager in accordance with section FA 2000 of DEP-SOP-001/01. All non-standard procedures and methods must be approved by the DEP contract manager before use under this Contract and must be cited or described in the planning document.

d. Per the quality control measures outlined in the DEP SOPs (FQ 1000 and the calibration requirements of the FT-series for field testing), the CONTRACTOR shall ensure that the following field quality controls (and any additional quality control measures specified in the addenda) are incorporated into the project design:

(i) Matrix-Related Quality Controls - The CONTRACTOR shall ensure that the laboratory is provided with sufficient sample volume to analyze at least one set of matrix spikes, and either matrix spike duplicates or laboratory duplicates as follows:

(1) The first time a sample from a sample collection matrix (see Table FA 1000-1) is collected;

(2) One in each additional 20 samples of the sample collection matrix, after the first 20 samples; and

(3) The last time samples are collected for the sample collection matrix.

(ii) Field duplicates (not to be confused as laboratory duplicates) shall be collected and analyzed at a frequency of 5% of the total number of samples collected for each matrix/analyte combination (see FQ 1220).

(1) All field duplicate results greater than the PQL should agree within 20% RPD for each measured analyte. In the event that the field duplicate agreement is not observed, the CONTRACTOR shall investigate and attempt to determine the cause of poor precision. The outcome of these investigations shall be reported including corrective measures to minimize future problems.

(iii) Field-Generated Blanks – Blanks associated with field activities as defined in FQ 1210 of the DEP SOPs, shall be collected according to the requirements of FQ 1230.

(1) If the reported analyte is reported in any field blank, equipment blank or trip blank, the CONTRACTOR shall investigate and attempt to determine the cause unless the affected samples are at least 10 times the reported blank value. The outcome of these

investigations shall be reported including corrective measures to minimize future occurrences.

4. **REPORTING, DOCUMENTATION AND RECORDS RETENTION**
   a. The CONTRACTOR shall ensure that all laboratory and field records as outlined in Rules 62-160.240 and .340, F.A.C. are retained for a minimum of five years after the project completion.
   b. All field and laboratory records that are associated with work performed under this Contract shall be organized so that any information can be quickly and easily retrieved for inspection, copying or distribution.
   c. The CONTRACTOR shall ensure that all laboratory reports are issued in accordance with NELAC requirements. These reports shall be submitted to the DEP contract manager and shall include the following information:
      - Laboratory sample identification (ID) and associated Field ID
      - Analytical/test method
      - Parameter name
      - Analytical result (including dilution factor)
      - Result unit
      - Applicable DEP Qualifiers per Table 1 of Chapter 62-160, F.A.C.
      - Result comment(s) to include corrective/preventive actions taken for any failed QC, unacceptable measurement or other problem related to the analysis of the samples
      - Date and time of sample preparation (if applicable)
      - Date and time of sample analysis
      - Laboratory verification results of field preservation
      - Sample matrix
      - DoH ELCP certification number for each laboratory (must be associated with the test result(s) generated by the laboratory)
      - MDL
      - PQL
      - Sample type (such as blank, duplicate, etc.)
      - Field and laboratory blank results:
        - Laboratory blank results (results for any laboratory blank analysis as required by the method and the planning document) (see Section 6);
        - Field quality control results including trip blanks, field blanks, equipment blanks, and field replicates as specified in the planning document (see Section 6)
      - Results of sample matrix spikes, laboratory duplicates or matrix spike duplicates, as applicable
      - Results of surrogate spike analysis (if performed)
      - Results of laboratory control samples (LCS)
      - Link between each quality control sample and the related sample results
      - Acceptance criteria for each reported quality control measure
   d. The CONTRACTOR shall ensure that the following field-related information is reported to the DEP contract manager:
      - Site and/or facility name, address and phone number
      - Field ID for each sample container and the associated analytes (test methods) for which the container was collected
      - Date and time of sample collection
      - Sample collection depth
      - Sample collection method identified by the DEP SOP number
      - If performed, indicate samples that were filtered
      - Field test measurement results:

- DEP SOP followed
- Parameter name
- Result
- Result unit
- Applicable Data Qualifiers per Table 1 of Chapter 62-160, F.A.C.

▸ Narrative comments discussing corrective/preventive actions taken for any failed QC or unacceptable field measurement or other problems related to the sampling event.

5. **AUDITS**

a. AUDITS BY THE DEPARTMENT – Pursuant to Rule 62-160.650, F.A.C., the Department may conduct audits of field and/or laboratory activities. In addition to allowing Department representatives to conduct onsite audits, the CONTRACTOR, upon request, must provide the Department with the requested information, including all field and laboratory records pertinent to the contracted field and laboratory activities. If an audit by the Department results in a determination that the data are not usable for the contracted proposed purpose, the DEP contract manager shall pursue remedies available to the Department including those outlined in Addendum 1.

b. PLANNING REVIEW AUDITS –

(i) Initial: Prior to the completion of the sampling and analysis events, and as specified in the addendum, the CONTRACTOR and all associated subcontractors shall review the planning document (see Section 6 below) relative to the completed field and laboratory activities to determine if the data quality objectives are being met, identify any improvements to be made to the process, and refine the sampling and/or analytical design or schedule. Within one month of the review, a summary of the review, including any corrective action plans or amendments to the planning document, shall be sent to the DEP contract manager, and a copy shall be maintained with the permanent project records.

(ii) Ongoing: Planning reviews as described in item (1) above shall occur annually.

c. QUALITY SYSTEMS AUDITS – The CONTRACTOR and all subcontractors shall ensure that any required laboratory and field quality system and management systems audits are performed according to the respective Quality Manuals for each contracted and sub-contracted entity. These audits shall be documented in the CONTRACTOR's and subcontractors' records.

d. STATEMENTS OF USABILITY – As a part of the audit process and the final report, the CONTRACTOR shall provide statements about data usability relative to the Project Data Quality Objectives and Data Quality Indicators specified in the planning document.

6. **PLANNING DOCUMENT**

a. The CONTRACTOR shall submit the planning document specified in the addendum to this attachment to the DEP contract manager no later than 120 days prior to the commencement of field and laboratory activities. Failure to submit the planning document by the above-mentioned time shall result in a delay of approval to begin work until the document has been submitted to the Department and approved by the DEP contract manager.

b. The CONTRACTOR and subcontractors may submit a version of the planning document to the Department for approval no more than three times. If the CONTRACTOR fails to obtain approval for the planning document after the third (final) submission to the Department, the DEP contract manager may suspend or terminate the Contract.

c. The DEP Contract number shall appear on the title page of the submitted planning document. Within forty-five (45) days of receipt of properly identified documents by the Department, the Department shall review and either approve the planning document or provide comments to the CONTRACTOR and affected subcontractors as to why the planning document is not approved. If further revisions are needed, the CONTRACTOR shall then have fifteen (15) days from the receipt of review comments to respond. The Department shall respond to all revisions to the planning document within thirty (30) days of receipt.

d. If the review of the planning document by the Department is delayed, through no fault of the CONTRACTOR, beyond sixty (60) days after the planning document is received by the Department, the CONTRACTOR shall have the option, after the planning document is approved, of requesting and receiving an extension in the term of the Contract for a time period not to exceed the period of delayed review and approval. This option must be exercised at least sixty (60) days prior to the current termination date of the Contract.

e. Work may not begin for specific Contract tasks until approval has been received by the CONTRACTOR from the DEP contract manager. Sampling and analysis for the Contract may not begin until the planning document has been approved.

f. Once approved, the CONTRACTOR shall follow the protocols specified in the approved planning document including, but not limited to:
   - Ensuring that all stated quality control measures are collected, analyzed and evaluated for acceptability;
   - Using only the protocols approved in the planning document; and
   - Using only the equipment approved in the planning document.

g. If any significant changes in procedures or test methods, changes in subcontractor organizations, or changes in key personnel occur, the CONTRACTOR shall submit appropriate revisions to the planning document to the DEP contract manager for review. The proposed revisions may not be implemented until they have been approved by the DEP contract manager. If the CONTRACTOR fails to submit the required revisions, the DEP contract manager may suspend or terminate the Contract.

7. **DELIVERABLES**

a. The following lists the expected schedule for the deliverables that are associated with the Quality Assurance requirements of this Contract:
   (i) Copy of DoH ELCP Certificate(s) and the associated list of specific fields of accreditation, per item 2.d above.
   (ii) Copies of the QCC sample results per item 2.f. above.
   (iii) Non-standard laboratory or field procedures – The CONTRACTOR shall submit to the DEP contract manager all required information necessary for review of non-standard procedures per items 2.h. and 3.b. above.
   (iv) Reports of planning review audits as specified in item 5.b. above.
   (v) Statements of Usability as specified in item 5.d. above.
   (vi) Planning document per Section 6, above.

b. Failure to provide any of the above items may result in the pursuit of remedies available to the Department.

Addendum 1
Modifications to Attachment G, Quality Assurance Requirements

1. Failure to comply with any requirement of this attachment may result in:
   a. Immediate termination of the Contract.
   b. Withheld payment for the affected activities.
   c. Contract suspension until the requirement(s) has been met.
   d. A request to refund already disbursed payments.
   e. A request to redo work affected by the non compliance.
   f. Other remedies available to the Department.
2. **LABORATORIES**
   e. The following quality control addenda must be followed:
      (i) Addendum 2, Quality Control Requirements for Laboratories Performing Chemical Analysis with the following modifications:
         (1) 1. b. After the first 20 samples from the sample collection matrix.
         (2) 8. deleted
         (3) 9. deleted
      (ii) Addendum 3, Quality Control Requirements for Laboratories Performing Microbiological Testing.
3. **FIELD ACTIVITIES**
   a. The following Section 3 requirements are amended as follows:
      (i) 3.d.i. (2) After the first 20 matrix samples.
      (ii) Field duplicates (item 3.d.ii) shall not be collected
4. **REPORTING, DOCUMENTATION AND RECORDS RETENTION**
   a. The CONTRACTOR shall submit the data electronically using the following format:
      (i) Excel 97 file or Access 2000 file. Adobe PDF file with final report.
   b. In addition to the information in item 4.d, the CONTRACTOR shall ensure that the following field information is reported:
      (i) N/A
5. **AUDITS**
   a. The initial planning review audit will be performed in accordance with Section 5.b.1 within 30 days of completion of the first sampling event.
6. **PLANNING DOCUMENT**
   a. Per Section 6 requirements, the type of planning document to be submitted is a:
      (i) Quality Assurance Project Plan (QAPP). This document shall be submitted to the DEP Project Manager for review and approval. The plan shall be consistent with the EPA Document EPA-QA/R-5, EPA Requirements for Quality Assurance Project Plans, dated March 2001.
   b. When the approved planning document requires modification, at the discretion of the DEP Project Manager the amendments shall be:
      (i) Provided in a new planning document, or
      (ii) Provided as amended sections of the current document, or
      (iii) Documented through written or electronic correspondence that becomes part of the planning document.
7. **DELIVERABLES**
   a. The following deliverables are not required under the terms of this Contract:
      (i) 7.a.iii deleted.

Addendum 2
Quality Control Requirements for Laboratories Performing Chemical Analysis

In addition to the quality control requirements outlined in Chapter 5 of the NELAC Standards, the following quality control measures shall be implemented for this Contract. Note: "Sample" refers to samples that have been either collected or analyzed under the terms of this Contract.

1. Matrix-Related Quality Control Samples - The CONTRACTOR shall ensure that samples associated with this Contract are used for matrix spikes, and either laboratory duplicates or matrix spike duplicates. The laboratory shall analyze these samples:
   a. The first time a sample from a sample collection matrix (see Table FA 1000-1) is collected.
   b. After the first 20 samples from the sample collection matrix, at least one matrix spike and either laboratory duplicates or matrix spike duplicates in each additional 20 samples of the sample collection matrix.
   c. The last collection event for the sample collection matrix.
   d. Spike levels must be at concentrations specified in item 3 below.
   e. The results of matrix spikes must meet the specific acceptance criteria established for the Contract or the data must be appropriately qualified.
   f. Sample duplicates or matrix spike duplicates must be evaluated for precision criteria established for the Contract. If the selected sample concentration is expected to be below the laboratory's PQL, then matrix spike duplicates must be used.
2. Per NELAC Chapter 5 requirements, as least one Laboratory Control Sample (LCS also known as Laboratory Fortified Blank) shall be prepared, analyzed and evaluated with each batch of 20 samples or less.
   a. If the LCS is unacceptable, the samples associated with the LCS shall be reprocessed with a new LCS. If samples cannot be reprocessed, the data must be appropriately qualified.
3. Spiking/Fortification Requirements - All spike fortifications must take place prior to any required sample preparation steps (e.g., sample extraction, sample digestion, etc.). The final concentration of any spike fortification shall be at the applicable level identified below.
   a. If any of the samples in the preparation batch are non-detect, the spiking level must not be greater than 2 times the Contract-established practical quantitation limit (PQL).
   b. The concentration in a spiked sample cannot exceed 5 times the highest concentration of any contracted sample in the preparation batch.
4. Instrument Calibration – The following discussions supplement the method specified calibration procedures, which must be followed:
   a. Initial Calibration Requirements
      (i) Unless otherwise specified by the method, all sample results shall be based on the initial calibration curve responses.
      (ii) If a linear regression is used, the correlation coefficient shall be equal to or greater than 0.995.
      (iii) Immediately after performing an initial calibration, the accuracy of the calibration shall be verified using a second source. A second source may be a standard, a Standard Reference Material (SRM), or other sample type with a verified concentration such as a QC Check Sample. The standard must have been prepared from a different lot or vendor, and the verified SRM or QC Check sample must have been verified by an organization that is external to the laboratory.
      (iv) Sample analysis cannot proceed if an initial calibration is unacceptable.
   b. Continuing Calibration Requirements:

(i) When an initial calibration is not performed on the day of analysis, a continuing calibration standard shall be analyzed, evaluated and determined to be acceptable prior to analyzing samples.

(ii) A continuing calibration standard shall be analyzed and evaluated at the end of the analytical run.

(iii) For each analytical run, the analytical sensitivity must be evaluated using a continuing calibration standard prepared at the PQL. The analyzed value of this standard must be within 70 – 130% of the expected value. If this PQL check fails, the blank and associated sample results must be reported as "estimated" per Chapter 62-160, F.A.C. unless the affected results are at least 10 times the absolute value of the observed bias.

(iv) The samples shall be chronologically bracketed between acceptable continuing calibration evaluations.

(v) If a continuing calibration verification fails, samples run after the failure must be reanalyzed or appropriately qualified.

c. Sample results below the practical quantitation limit (PQL) and above the highest calibration standard shall be appropriately qualified.

5. Blanks
   a. If the analyte is detected in any analytical blank, the sample results that are associated with the blank must be reported with the appropriate qualifier from Chapter 62-160, F.A.C., unless the affected results are at least 10 times the calculated blank value.
   b. Sample results must be bracketed with an acceptable beginning and ending analytical blanks.
   c. If the analyte is detected in the field blank, equipment blank or trip blank, the result must be confirmed by reanalyzing a new aliquot of the blank unless the sample results associated with the blank are at least 10 times the calculated blank value. The laboratory must investigate sufficiently to determine that positive blank results are not due to a laboratory error, and report results with appropriate qualifiers and/or comments.
6. If any quality control measure or calibration verification (including those specified above) fails, samples that are associated with the failure must be reanalyzed, if possible. Sample data that are associated with a failed quality control measure must be appropriately qualified as specified in Chapter 62-160, F.A.C. An explanatory comment must be attached to the final report for each result that has a qualifier code other than U, I, or A. Any additional qualifier codes used but not explicitly provided for in Chapter 62-160, F.A.C. must be identified and defined in the report.
7. The reported MDL and PQL for each sample must be adjusted for dilution factors, and any relevant preparation weights and volumes.
8. Field duplicates - The CONTRACTOR shall ensure that field duplicates (not to be confused as laboratory duplicates) are analyzed. All field duplicate results greater than the PQL should agree within 20% RPD for each measured analyte. In the event that field duplicate agreement is not observed, the laboratory must investigate sufficiently to determine that poor precision is not due to a laboratory error, and report the results with appropriate qualifiers and/or comments.
9. For all organic analyses using either gas chromatography or HPLC, analytes with concentrations above the method detection limit shall be confirmed by at least one of the qualitative identification measures listed below. Confirmation must occur the first time an analyte is detected at a sampling point.
   - Second column/same detector
   - Second column/alternate detector
   - Same column/alternate detector
   - Mass spectrometry
   - Alternate wavelength

Addendum 3

Quality Control Requirements for Laboratories performing Microbiological Testing

In addition to the quality control requirements outlined in Chapter 5 of the NELAC Standards, the following quality control measures shall be implemented for this Contract. Note: "Sample" refers to samples that have been either collected or analyzed under the terms of this Contract.

1. Blanks
   a. If the membrane filter technique was used, the sample set(s) shall be associated with a beginning and ending filtration blank.
   b. The results of any blank must be < 1 CFU/100 mL or the associated sample results must be reported with the appropriate qualifier from Chapter 62-160, F.A.C.
   c. All duplicate results shall be evaluated per method specifications. In the event that field duplicate agreement is not observed, the laboratory must investigate sufficiently to determine that poor precision is not due to a laboratory error, and report the results with appropriate qualifiers and/or comments.
2. All microbiological analyses must conform to requirements for facilities, personnel and equipment specifications and quality control measures discussed in *AWWA Standard Methods 20th edition, section 9020.*
3. At least 10% of the samples (or one per test run) shall be duplicated.
4. Colony Counts
   a. The laboratory shall make every attempt to ensure that colony counts are in the ideal range of 20 – 60 colonies per plate. Reported values from colony plate counts outside this range shall be qualified with a "B" (unless reported value is from a 100 mL sample and the count is less than 20).
   b. If all counts are above 60, the result shall be calculated and reported from the highest dilution. This result must be reported as "estimated".
   c. The laboratory shall follow the reporting requirements specified in the method for other results that are outside the ideal range (item 3.a of Addendum 3)
   d. If the sample result is "too numerous to count (TNTC)" the laboratory shall report the filtration volume with the data qualifier "Z".
   e. Colony counts from samples that have been verified shall be adjusted based on the verification results as specified in the method.